



Amended Figure 1 (sheet 1 of 1)

1/20

SEQ ID NO:39 1 M G E Y L A E P R G F V C G V E P L 18
SEQ ID NO:38 1 TTCCCTAAATGGGAGAATACCTCGCTGAACCCGCGGGTTTGTGTGTGGGGTTGAGCCTC 60

19 C S Y E Q Y F G P G T R L T V L E D L R 38
61 TGTGCTCCTATGAACAGTACTTCGGTCCCGGCACCAGGCTCACGGTTTTAGAGGATCTGA 120

39 N V T P P K V S L F E P S K A E I A N K 58
121 GAAATGTGACTCCACCCAAGGTCTCCTTGTGTTGAGCCATCAAAGCAGAGATTGCAAACA 180

59 Q K A T L V C L A R G F F P D H V E L S 78
181 AACAAAAGGCTACCCCTCGTGTGCTTGGCCAGGGGCTTCTTCCCTGACCACGTGGAGCTGA 240

79 W W V N G K E V H S G V S T D P Q A Y K 98
241 GCTGGTGGGTGAATGGCAAGGAGGTCCACAGTGGGGTCAGCACGGACCCCTCAGGCCTACA 300

99 E S N Y S Y C L S S R L R V S A T F W H 118
301 AGGAGAGCAATTATAGCTACTGCCTGAGCAGCCGCTGAGGGTCTCTGCTACCTTCTGGC 360

119 N P R N H F R C Q V Q F H G L S E E D K 138
361 ACAATCCTCGAAACCACTTCGCTGCCAAGTGCAGTTCCATGGGCTTTAGAGGAGGACA 420

139 W P E G S P K P V T Q N I S A E A W G R 158
421 AGTGGCCAGAGGGCTCACCCAAACCTGTACACAGAACATCAGTGCAGAGGCCTGGGGCC 480

159 A D C G I T S A S Y H Q G V L S A T I L 178
481 GAGCAGACTGTGGAATCACTTCAGCATCCTATCATCAGGGGGTTCTGTCTGCAACCATCC 540

179 Y E I L L G K A T L Y A V L V S G L V L 198
541 TCTATGAGATCCTACTGGGGAAGGCCACCTATATGCTGTGCTGGTCAGTGGCCTGGTGC 600

199 M A M V K K K N S * 208
601 TGATGGCCATGGTCAAGAAAAAAATTCCTGAGACAACTTTTATGCATCCTGAGCCGTT 660

661 CTTACCCCTGGCCATAGATTTTCTGACCTTCTCTAATTCCTGTCTCTAAGAACTTGTCT 720

721 TCTTCTTCTCCATGGATATCCATCCTTCTCCTGACACCTTGACTCTGAAA 773

Amended Figure 4 (sheet 1 of 4)

4/20

Sequences of intronic J β sequences containing Met:

(Met: bold; J β exon: italics)

J β 2.1 KGSREVEPPFSPYHVNHHQQSIRTCMGNYELIKKH Stop V E
K Stop TLCGKEVTSPFSLEATWTPTGSLQISNSLCQTLSE
Stop MDIRSQAKSGISSSI Stop DRPHARSRLPYQFWR Stop M
ENVS NPGSCIEEGEERGRILGSPFLLCNYAE **QFFGPGT**
RLTVL (SEQ ID NO:40)

J β 2.6 ELLGNCSGEFWGFWRLYPEFPSRALEREA Stop QGDFF
Stop MGEYLAEPRGFVCGVEPLCSYE **QYFGPGTRRLTVL**.... (SEQ ID
NO:41)

Sequences of intronic J α sequences containing Met:

J α TA31 VSKKKKKKSVTIL Stop NSEPAEGAINSSLLGSLDP
G Stop NVLEHCTGLLPSPKDDP Stop CQDRSSFLWGGGQWIFAVI
VFCLAHSPRLW Stop PETSPQSTTQEQRVKG Stop LN
Stop GERDIGHVTRRNFTQKKNCHLGRC Stop SVSMAEVT
PPPCPRLVSQLRHGH Stop QKGGFLSSLKTNLAESHLPS
PNEPVVSVDALGSVRRVFVAEGSRLTRRARWGRTYRG
WTEASPCLHSSCAA Stop SSCGF Stop TGGRGGWGRGAIPK
AVACFGICSGLLCLPPWERTHLASRLDVAGQEDTGVG
GNSFRGEGERGGRTVVEGVTGGSMSRM Stop SE Stop VKFK
KLEIKNKKQGRGLQKVYRAGTVDFVMAWHTV **ANYGNEK**
ITFGAGTKLTIKP.... (SEQ ID NO:42)

J α TA46 Stop VFLPGRWEPK Stop EVDRDISNPPCKPLV Stop LPT
VDTV Stop TI Stop RTLSHIDE GSDVVHT Stop EDSRDLSLVTVSDC
MPIVVHSRVQQT KDRDIKIRWTLSS Stop PHLCNQMIFTGSLAN
GCVA Stop SLTISPLLSPWLSFGSLSLT Stop NLK Stop
SIY Stop IIRFLGCITHKKMTSRHININPEERGQRALSQT
CSELNLTTPCFNQLASAYDQLRQRATDRKWSSRHHLTR
AL Stop PHQR Stop YFRVQESFPQAGWLERGHGSALRQAME
AGWEVQHWVSDMECLTV **VTGSGGKLT LGAGTRLQVNL**...
(SEQ ID NO:43)

Amended Figure 4 (cont.) (sheet 2 of 4)

5/20

JaNew05 Stop VKD Stop GYPKTK Stop VCGFAVLCSFGGCM SLPPR
SLCITLMGLC Stop LMKSGH SKDLDEEVIITAFFHY Stop LRI Stop
RSA Stop R Stop FINVRLMFVLR Stop Y Stop KPNN SKIRLS
SVT Stop THIH THSH THIL THWHNHTHTHTLSQSHTHTHS
HTSTITHTLTQPHTHSLSLSLSLSLSLSLSLSLSLSLP RQ
CNCIWFP SRNGCCVCLT Stop DMQSYQLVSWLGFCYC Stop
FSVKTL PVKEAWCYQP Stop SCHYSNHIYT Stop PFYYFIS
LKLAQLIRIQCWGNKTS GF Stop SSSE Stop LHSQLLVLRG
CSKPSQTLGT KAARRKASTRGEDDVAFLGLPLGPSCLL
VIVRPQMTVNS *GG SNAKLTFGKGTKLSVK S...* (SEQ ID NO:44)

JaS58 WV Stop RFHVTAVALCSF Stop TSLLHLF Stop LETLGFR
LSFLFKKQSL Stop SK Stop QDLLCLLSFHI VTKAGRICSKLGLRL
LAKVEWM Stop V Stop LVYRKERFVLLFF Stop P Stop Stop YS
KVKATT VASKVLQAWSVLQGETWGNWLT FHGKTGMLFV
VGLLLLLLLSSLSLSLKET Stop YNTF Stop LSGFE Stop LGIQ
MCITCSWQGSRAVVLNLPNVVAPSPPKTIKLFCCYFIA
VTLLLL Stop IGM Stop ISYMQLI Stop YATPVKGSLNPQRRS
ALQDESRCRGRWSTVSNVRGAIELGRNTMPTFEEKKN
SSLGLEQD Stop PLFLVSPLPLEKKPFICNGLSRLMSF
Stop MRFHVLT Stop Stop DSLGRRSLPLQV Stop Stop VF Stop D
Stop VGNVNCTAKIRRAGINSQPLLMLSL Stop NRNQIRML
SSVCVHTPPRAS Stop FD Stop CQ Stop LIQIFRHLSEQTSLG
SLCLN Stop LSRYLHNCQICFTLCCIDSA Stop Stop KQMRLC
FPRSFS PRSSLP SK Stop HLFTQREDVQRVT Stop LIAA
ASLHLYDSL PWKRLKH FIRLIS Stop TD Stop QPN Stop EERN
RF Stop ASFLWLQFQATHLEHLVRHLRNTGARREV VSLCG
LVFLSCTENFTQEEESK Stop VEN Stop QPGIHM YTKQS Stop
ASALSGSTVWFPHSPTPAPFISNTYIILFSFSFEFLSA
MPSHNPSTYHCLSNPRMDGSGTGRVLFSGPSAEPLKKC
RLYPSS Stop VATRRLGRGQDEEKPQESGTASLW Stop YIR
LNLLSGLKCF SFHLEPMC GSEEVFVVESATV *ADRLCKC*
ADIWIWHKSHSMST... (SEQ ID NO:45)

JaNew06 KCVFSCSLGLEQYCSLHPQIFSRRIQCLALQTLPV
Stop PLKGSYSFF Stop K Stop HRRIPFNVANCGGD Stop TAQGP NLCS
SLL Stop GQLCLLSHR Stop TSESGGLFPSLAFPVDEVVL
STNFIVKDTHDRQLLPYFSLNKFFLC Stop Stop L Stop QHIS
ANEFLVIQINSSVT Stop TVASYPIIQNSLTHHSA AAHCA
SSNPDLHASSNKAKRMACYQMYFTGRKVDEPSELGSGL
ELSYFHTGGSSQAVGLFIENMISTSHGHFQEMQFSIWS
FTVLQISAPGSHLPETERAEGPGVFVEHDITV *SSNTN*
KVVFGTGTRLQVLP... (SEQ ID NO:46)

Amended Figure 4 (cont.) (sheet 3 of 4)

6/20

JaNew08 Stop VMFHFLMF Stop NSLPLS Stop RCSECRVGKLMHMLG
HGGQHSCTGYSTAQPDTTSPTTGETAPTLPDPTKIFLIVYLI
Stop RAKGKIKKLC PESILKSPRPSPPYPH Stop SPADCK
FNVIFGSY Stop K Stop Stop GFLCLMTPTVSLPSFIKGLLFC
VWPLLASWFCPHAPLCLFQGWAGDNSFKSHFDVTDNRD
KVLAKCNTAHGVFSRHTTSQLFSSVQKHGHSYLSAISY
SDTAKCSFKAGTRDFLWDLFLRLTMGWAFSGSSEMPSW
IPALPMEILWSG Stop TAKPDMFLLYRLLQGLEIRTLREN
KSFG Stop MGRLLDGSIRKRND Stop QEERPKKNTGQALGW
GGVGM SRKMVTVG IQEAGSL S Stop EGKQGFL Stop LK VPS
QLSNLNQQGHLPFP SDFPVHVGMP LPTMVC Stop EVGRG
IDQEYV Stop HS Stop GPLFKHETPESVRGAKSLGPRREM Q
QSNSSQQVWRSTEQDPVLALCLTPLASPDHTAHPSSFS
Stop PQESKVL DREPEIP Stop PGQVQKGWSGAQGWFLKTL
WISI Stop FLIYNKF Stop LS Stop VIRKMFL L Stop TIPVKGK
DNIYRGPLLRCQFP PWASMWGLILSASVKFLQRKEIL
CLPGTGSNRLTFGKGTKFSLIP... (SEQ ID NO:47)

JaLB2A Stop VIVTHPLC Stop IPPTRSIFALSSL Stop LGSLSNVVS
VTPCPYLLSRYKWSKQILGFH Stop HSETDNCVLDILQKEGFQS
KGSYFY Stop LTHKEAGDNWKVPGEYLG FQKADMAQCMHS
Stop KIP Stop LTFIEYLLYACVNAPCTLSHLRG Stop W
LWGRFYPTFKGKVEIVTKWLRENGGPS Stop TSSRPGCPH
CGLSQPGSC Stop GLYRMK Stop PVVLVTTSSVLSQ Stop P
Stop CL Stop EQGVR Stop DSLCFLDSDTLKQNGECVHEQFHS
GSMVNGQ Stop TNLKRSSLWLES Stop PFSTPLSSLPTFLS
SWTFISGKPLHRCCLC Stop Stop RSQIKN Stop ERLSPGHTKN
LRR Stop LFFQYLKN SCVDN GRG Stop HQRQNQKQ Stop MKRR
PSFSGMLLNGAVGGQAPL Stop SLESALQGLHSGSSGLRW
RALWKEFLWHFRLWISCELEVLRPHDPSIEDKRVGYIC
FFLFLLF Stop Stop PRNRPSNCSQAEAYRDFFTLRR Stop RT
MISQCSKWGKKRREREREREREREREREREREREREREM P Stop
RRARG Stop TKEVG Stop LCRGQI Stop SIEVFISSALE Stop N
PSIM Stop VLVTEAVF Stop TGKQDQGSEGLPI Stop TLSKGC
VIAF Stop Stop ERTLAVERLLLPQIICLLRCSL Stop RKSDC
LP Stop LLGAWGKDLGKLRADRRSFSALHSQARERGWGMV
GADLCKGGWHCV **DRGSALGR LHFGAGTQLIVIP... (SEQ ID NO:48)**

Amended Figure 4 (cont.) (sheet 4 of 4)

7/20

JαDK1 Stop VCLFLWIPNLIHC Stop DKCKLFRHVSGVSTVPIH
PDITGSKVPSHAFVLTTRKTGSSLYCWQAQ Stop GSRLEDASD
AQQPAWDCPGRESCSEMPSSLPLGIIL Stop LSSPT Stop
ARPCLSVAYSIPASHTCGCANILIEASGRS Stop GSSMLL
F Stop GKASH Stop Stop SKAG Stop LDSPPPKSLHIPGSGLQV
QTTMLVFV Stop VLDMEPGCACLQGKHFIG Stop AISLAHL
PVSIFF Stop ERISW Stop YSHLVHRQKDDVDVPRWHTVIW
SQALIFPPSIFRCLSVKVISSSMSPGGRLACCPSSAVA
WMASSCYPT Stop L Stop CIPIIHLTLVYLLFPYSS Stop MYC
HATVMLFIVSSVSSVVPIS Stop TKIQRPNCLPCLKIIVLE
KKLEFCCCLYRH Stop ELRSLAVARTGYDFCSV Stop LHTP
Stop V Stop MREPVKNLQGLVSL **CLPGRQSSDIWNRNHGIS**
QP..... (SEQ ID NO:49)

JαTA39 Stop VPDSW Stop L Stop RPPLSHSLYHTDDHMPYHSSKV
ELGFNEERN Stop MLLVVAVLHPMSHSMFIITLITSSDKRKFT
RTVTIC Stop TLVKMKVSTGAGAYCNSGYQKDQALARKKLNK
Stop Stop VDLVKLLQIFFKNQYVSELTGEYSAAILSGFSYSYGT
VVEPCKRGFHLNSMLSLYSSNQKGGIPSR
TPKREES Stop MLITSI Stop DHSRLSIFVRQHGTIYNVF
IWGTRHH Stop RDA Stop Stop GC Stop DPLNLPQYL Stop GTVVK
ELMVHADKHIPCMGKLSK Stop GCRTGCEQDRSCRNPRNN
SSRRADPEERAAQLKHIQVP Stop ICFDSCCTGPALSVKRK
CLIILHKLI Stop G Stop VNVCKNILQILKCYPHIKYGSIK
QQKILKLGQS Stop TLLR Stop RDGVCSCGSVATGTG Stop KH
PLSLMEVYELRVTLMETGRERSHFVKTSLT **VQILGLTR**
GLELGQNSKSFQ.....(SEQ ID NO:50)

Amended Figure 11 (sheet 1 of 1)

17/20

Intron 5' to J β 2.3	J β 2.3	C β 2
----------------------------	---------------	-------------

```

      Intron 5' to J $\beta$ 2.3
1  atggggctctcagcgggtgggaaggaccgagctgagctctgggacagcagagcgggcagca 60
1  H G L S A F G R T R A E S G T A E R A A 20
      J $\beta$ 2.3
61  ccgggtttttgtcctgggcctccaggctgtgagcagacagatacgcagtattttggcccaggc 120
21  P F F F L G L Q A F S T D T Q Y F G P G 40
      C $\beta$ 2
121  acccggtgacagtgctcgaggacctgaaaaacgtgttcccacccgaggtcgtgtgttt 180
41  T R L T V L E D L K N V F P P E V A V F 60

181  gagccatcagaagcagagatctcccacacccaaaaaggccacactggtgtgcctggccaca 240
61  E P S E A E I S H T Q K A T L V C L A T 80

241  ggcttctacccccaccacgtggagctgagctggtgggtgaatgggaaggaggtgcacagt 300
81  G F Y P D H V E L S W W V N G K E V H S 100

301  ggggtcagcagacagacccgcagccctcaaggagcagccgcctcaatgactccagatac 360
101  G V S T D P Q P L K E Q P A L N D S R Y 120

361  tgctgagcagccgcctgagggctctcgccacottctggcagaacccccgcacaccacttc 420
121  C L S S R L R V S A T F W Q N P R N H F 140

421  cgctgtcaagtccagttctacgggtctcggagaatgacgagtggaaccaggatagggcc 480
141  R C Q V Q F Y G L S E N D E W T Q D R A 160

481  aaacccgtcaccacagatcgtcagcgcaggcctggggtagagcagactgtggottcacc 540
161  K P V T Q I V S A E A W G R A D C G F T 180

541  tccgagttctaccagcaaggggtcctgtctgccaccatcctctatgagatcttctaggg 600
181  S E S Y Q Q G V L S A T I L Y E I L L G 200

601  aaggccacottgtatgccgtgctggtcagtgccctcgtgctgatggccatggtcaagaga 660
201  K A T L Y A V L V S A L V L M A M V K R 220

661  aaggattccagaggctag
221  K D S R G *

```

678 SEQ ID NO:67
225 SEQ ID NO:51